

GUSEL'SHCHIKOV, M.K., prof.

Arc surface welding of joints. Sudostroenie 24 no.11:63-64 N '58.
(MIRA 12:1)

(Electric welding)

GUSEL'SHCHIKOV, M., prof.

Friction welding of metals. Mor.flot 19 no.11:28-29
N '59. (MIRA 13:3)
(Metals--Welding)

CHUVATOV, V.V.; BEREZIN, N.N.; METSGER, E.Kh.; NAGIN, V.A.; KARTASHOV, N.A., kand. tekhn. nauk, dots.; MIL'KOV, N.V., kand. tekhn. nauk; BYCHKOV, M.I., kand. tekhn. nauk, dots.; SUKHANOV, V.P., SHLYAPIN, V.A.; KORZHENKO, L.I.; ABRAMYCHEV, Ye.P.; KAZANTSEV, I.I.; YARES'KO, V.F.; LUKOYANOV, Yu.N.; DUDAROV, V.K.; BALINSKIY, R.P.; KOROTKOVSKIY, A.E.; PONOMAREV, I.I.; NOVOSEL'SKIY, S.A., kand. tekhn. nauk, dots.; IL'INYKH, N.Z.; TSITKIN, N.A.; ROGOZHIN, G.I.; PRAVOTOROV, B.A.; ORLOV, V.D.; RACHINSKIY, M.N.; KULTYSHEV, V.N.; SMAGIN, G.N.; KUZNETSOV, V.D.; MACHERET, I.G.; SHEGAL, A.V.; GALASHOV, F.K.; ANTIPIN, A.A.; SHALAKHIN, K.S.; RASCHUKTAYEV, I.M.; TISHCHENKO, Ye.I.; FOTIYEV, A.F.; IPPOLITOV, M.F.; DOROSINSKIY, G.P.; ROZHKOV, Ye.P.; RYUMIN, N.T.; AYZENBERG, S.L.; GOLUBTSOV, N.I.; VUS-VONSOVICH, I.K., inzh., retsenzent; GOLOVKIN, A.M., inzh., retsenzent; GUSELETOV, A.I., inzh., retsenzent; KALUGIN, N.I., inzh., retsenzent; KRAMINSKIY, I.S., inzh., retsenzent; MAYLE, O.Ya., inzh., retsenzent; OZERSKIY, S.M., inzh., retsenzent; SKOBLO, Ya.A., dots., retsenzent; SPERANSKIY, B.A., kand. tekhn. nauk, retsenzent; SHALAMOV, K.Ye., inzh., retsenzent; VOYNICH, N.F., inzh., red.; GETLING, Yu., red.; CHERNIKHOV, Ya., tekhn. red.

[Construction handbook] Spravochnik stroitel'ia. Red.kollegiia: M.I. Bychkov i dr. Sverdlovsk, Sverdlovskoe knizhnoe izd-vo. Vol.1. 1962. 532 p. Vol.2. 1963. 462 p. (MIRA 16:5)
(Construction industry)

GUSEL'TSEV, B.S.; SHAPKIN, Ye.I., agronom po zashchite rastney.

An-2 airplane in the protection of sugar beets. Zashch.rast.ot vred.
i bol. 3 no.2:10-12 Mr-Apr '58. (MIRA 11:4)

1. Direktor Kiseleyskoy mashinno-traktornoy stantsii, Shpolyanskiy
rayon, Charkasskoy oblasti (for Gusel'tsev).
(Aeronautics in agriculture) (Sugar beets--Diseases and pests)

GUSENITSA, M.I.; PANSEVICH-KOLYADA, V.I.

Method for clarifying fruit and berry juice. Sbor.nauch.trud.
Bel. politekh.inst. no.87:76-78 '59. (MIRA 14:4)
(Liquids—Clarification)

GUSENKO, M. N.

Treatment of pyorrhea alveolaris by tissue therapy. Stomatolo-
giia, Moskva no.2:55-56 1951. (CIML 20:11)

1. Of the VTsSPS Sanatorium.

KIRYUKHIN, S.M.; GUSENKOV, A.M.

Side recovery of refractory clays in Kimovsk open-cut mines.
Ogneupory 27 no.2:72-76 '62. (MIRA 15:3)

1. Podmoskovnyy ugol'nyy institut.
(Moscow Basin--Coal mines and mining) (Fireclay)

PERKOV, V.V., gornyy inzh.; GUSENKOV, A.M., gornyy inzh.

Complex recovery of minerals in the Moscow coal basin. Ugol'
39 no.3:57-59 My'64. (MIRA 17:5)

GUSENKOV, A.P. (Moskva); SHNEYDEROVICH, R.M. (Moskva)

Characteristics of cyclic deformation curves in the ranges of supple
and stiff loads. Izv.AN SSSR.Otd.tekh.nauk.Mekh.i mashinostr. no.2:
150-152 Mr-Apr '61. (MIRA 14:4)
(Deformations (Mechanics))

S/032/61/027/003/005/019
B117/B101

AUTHORS: Gusenikov, A. P., and Shneyderovich, R. M.

TITLE: Deformation strength under cyclic load with low load cycle

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 9, 1961, 1123-1129

TEXT: A number of building materials (AK8 (AK8), B96 (V96), B95 (V95), A-16 (D-16), steels of the brands 30X7C (30KhGS), 45, chrome vanadium steel) were exposed to cyclic elastic-plastic deformation during torsion. This type of test made it possible to exclude the dependence of deformation curves on the initial load. Form and dimensions of a tubular specimen with 1 mm wall thickness permit, in the cross section ($t/d = 0.05$), attainment of a state of stress coming close to a steady state. Moreover, the stability is maintained at an initial load of the materials tested up to high degrees of deformation ($e_0 < 10$). The specimens were loaded on a special machine of the K-3 (K-3) type. It is driven by an electric motor, over a reducer, at a constant speed of 0.5 rpm. For deformations of $1 < e_0 < 10$, this safeguards a load frequency of up to 10 load cycles per minute. Force and deformation were measured by resistance strain gauges. The force strain gauges were to Card 1/4

Deformation strength under cyclic

S/032/61/027/009/005/019
E:17/B:01

the dynamometer so that only the torque is determined. The deformations are measured on the basis of 10 mm by means of a special device. The deformation curves are recorded by an automatic recorder described in: Metody opredeleniya napryazheniy i deformatsiy v mashinakh (Methods of Determination of Stresses and Deformations in Machines), Mashgiz (1960)). With this device it is possible to obtain curves for load cycles with limited stress, or deformation of any degree of asymmetry. The curves for cyclic deformation were investigated for initial deformation values of $1 \leq \epsilon_0 \leq 10$. The plastic components of these curves were found to be determined by two independent functions $\epsilon_p = F_1(S) F_2(k)$ (6). For a given stress, the values of the plastic components can be calculated from the formula $\epsilon_p = (A/k^\alpha) [f(S/2) - 1]$ (7). Here, $f(S/2)$ is determined by the curve for initial deformation. The equation for the cyclic deformation curve has the form $\epsilon = S$, ($S \leq S_m$)

$\epsilon = (A/k^\alpha) [f(S/2) - 1] + S$, ($S \geq S_m$) (8). Therefrom, cyclic deformation curves may be determined under soft load for any semicycle from the diagram of initial deformation according to known parameters A and α (A
Card 2/4

Deformation strength under cyclic ...

S/032/61/027/009/005/019
B117/B101

and α are coefficients constant for the respective heat treatment of the material). It may also be applied, with sufficient accuracy, to deformations with maximum distortions (hard load). The cyclic deformation parameters were found to depend on the type of heat treatment of the material. Tests with steel of the 30KhGS brand show that they may change within the ranges $1 < A < 2$ and $-0.5 < \alpha < +0.5$. The results found agree with those obtained by I. M. Roytman and Ya. B. Fridman (Ref. 8: Zavodskaya laboratoriya, XIII, 4 (1947)) while investigating the change in width of hysteresis loops during cyclic deformation. On the basis of the rules established, the change of the state of stress during cyclic elastic-plastic deformation may be evaluated. V. V. Moskvitin is mentioned: (Uprugo-plasticheskiye deformatsii pri povtornykh nagruzheniyakh (Elastic-plastic Deformations on Repeated Load) Doctor Dissertation, M, MSU (1960)). There are 8 figures, 2 tables, and 10 references: 6 Soviet-bloc and 4 non-Soviet-bloc. The reference to the English-language publication reads as follows: R. L. Wooley, Phil. Magazine, v. 44, ser. 7, no. 353 (1953).

Card 3/4

Deformation strength under cyclic...

S/032/61/027/009/005/019
B117/B101

ASSOCIATION: Institut mashinovedeniya Akademii nauk SSSR (Institute of
the Science of Machines of the Academy of Sciences USSR) ✓

Card 4/4

SHNEYDEROVICH, R.M., kand.tekhn.nauk; Frinimali uchastiye: KALUGINA, O.N.,
mladshiy nauchnyy sotrudnik; GUSENKOV, A.P., mladshiy nauchnyy
sotrudnik

Carrying capacity of parts under repeated static loading. Vest.
mash. 42 no.1:17-25 Ja '62. (MIRA 15:1)

1. Institut mashinovedeniya AN SSSR (for Kalugina, Gusenkov).
(Strength of materials)

GUSENIKOV, A.P. (Moskva); PARSHINTSEVA, T.S. (Moskva); SHNEYDEROVICH, R.M.
(Moskva)

Some characteristics of repeated-strain curves in case of a symmetrical stress cycle. Izv.AN SSSR. Otd.tekh.nauk.Mekh.i mashinostr. no.5:108-112 S-O '60. (MIRA 13:9)

(Strains and stresses)

GUSENKOV, A.P.; SERENSEN, S.V.; SHNEYDEROVICH, R.M. (Moscow):

"Investigation of properties of cyclic deformation diagrams for structural alloys."

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

GUSENKOV, A.P.; SHNEYDEROVICH, R.M.

Method of studying the diagrams of cyclic deforming at constant elevated
temperatures. Zav.lab. 29 no.12:1476-1480 '63. (MIRA 17:1)

GUSENKOV, A.P. (Moskva); LENEYDEROVICH, R.M. (Moskva)

Characteristics of a cyclic elastoplastic deformation at high
temperatures. Mashinovedenie no.1:86-90 '65.

(MIRA 18:5)

L 55972-65 EWT(d)/EWT(m)/EWP(w)/ENA(d)/EPR/T/EWP(t)/EWP(k)/EWP(z)/EWP(h)/ENA(c)
 Pf-4/Pe-4 IJP(c) MJW/JD/HW/EM
 UR/0032/65/031/006/0720/0725
 620.171
 42
 39
 73

ACCESSION NR: AP5014495

AUTHORS: Gusakov, A. P.; Larionov, V. V.; Shneyderovich, R. H.

TITLE: Peculiarities of tension-compression failure after a small number of cycles

SOURCE: Zavodskaya laboratoriya, v. 31, no. 6, 1965, 720-725

TOPIC TAGS: low cycle fatigue, fatigue, fatigue failure / V 95 aluminum alloy, 1Kh18N9T steel, 45 steel

ABSTRACT: To continue the low cycle failure investigations described by T. A. Beksh and R. M. Shneyderovich (Zavodskaya laboratoriya, XXX, 12, 1964), specimens of aluminum alloy V-96 (work hardening), steel 1Kh18N9T (work hardening and then constant load-deformation loop), steel 45 (constant loop width), and heat resistant steel (cyclic weakening) were experimentally fatigued in tension-compression at a rate of ~ 10 cpm. The specimens (test section 22 mm long and 8 mm in diameter) were loaded with symmetrical and asymmetrical loads ($r = \tau_{\min} / \tau_{\max}$)

between 1 and 0.3), and the load deformation, plastic deformation and area

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L 55972-65

ACCESSION NR: AP5014495

2.

reduction were recorded. The stress-cycle and elongation and area reduction cycle curves were obtained to determine the relative importance of "quasi-static" failure (marked by plastic deformation) and fatigue failure (marked by growth of fatigue cracks). The plastic deformation ϵ_p

$$\epsilon_{tot}^{(k)} = \epsilon^{(0)} - \sigma^{(0)} + \sum_{k=1}^k \delta^{(k)} \cdot (-1)^k.$$

(where $\delta(k)$ = plastic deformation during a half-cycle, 0 = initial loading) accumulated after k half-cycles was also evaluated and plotted as a function of cycles. It was found that for 1Kh18N9T (austenitic) quasi-static failure was primarily determined by the stress maxima, while fatigue failure was determined by stress amplitude. The curves for this steel represented the most general case exhibiting regions of quasi-static and fatigue failure as well as a large region of intermediate failure modes. For steel 45 the failures were quasi-static, independent of the initial stress and stress asymmetry, and occurred at a deformation close to the deformation of a single cycle failure. Alloy V-96 failed in fatigue at ψ of 2-3%, while static failure was accompanied by an area reduction of 15%. Typically, the alloy had a life of less than 100 cycles (quasi-static) and would not exhibit fatigue failure below 100 cycles. Figure 1 on the Enclosure shows a comparison between the fatigue properties of steel 45, 1Kh18N9T,

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L 55972-65

ACCESSION NR: AP5014495

and heat resistant steel. Orig. art. has: 7 figures and 1 formula.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy institut mashinovedeniya
(State Scientific Research Institute of Machine Design)

SUBMITTED: 00

ENCL: 01

SUB CODE: MM, AS

NO REF SOV: 008

OTHER: 001

Card 3/4

L-55972-65

ACCESSION NR: AP5014495

ENCLOSURE: 01

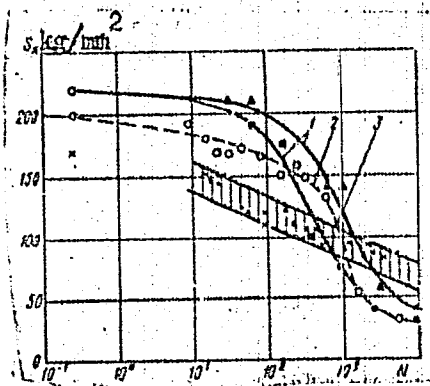


Fig. 1.

Fatigue stress versus number of cycles:

- 1- 1Kh18N9T (\square - $R = 0.9$, Δ - $r = 0.5$); 2- heat resistant steel (0);
3- steel 45 (x)

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L 3297-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)
 MJW/JD/HW/EM
 ACCESSION NR: AP5012073

UR/0380/65/000/001/0086/0090
 620.162.2:536.4

AUTHOR: Gusenkov, A. P. (Moscow); Shneyderovich, R. M. (Moscow)

TITLE: Characteristics of cyclic elastoplastic deformation at high temperatures

SOURCE: Mashinovedeniye, no. 1, 1965, 86-90

TOPIC TAGS: elastic deformation, plastic deformation, cyclic test, elastic hysteresis, heat resistant steel, austenitic steel, stainless steel/ 1Kh18N9T stainless steel

ABSTRACT: Samples of 1Kh18N9T austenitic stainless steel and heat resistant steel are studied for cyclic shearing (twisting of thin-walled specimens) with a symmetric loading cycle. It was found that 1Kh18N9T steel is hardened while heat resistant steel is softened by cyclic deformation. Variation in the width of the plastic hysteresis loop as a function of the number of loading cycles may be expressed as a power law in the case of 1Kh18N9T steel and as an exponential function in the case of heat resistant steel. The constant which characterizes deformation in the first loading cycle is practically independent of temperature. The parameters which

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L 3297-66

ACCESSION NR: AP5012073

reflect a change in the plastic deformation of the material as the number of loading cycles is increased are practically constant in the 350-400° range. These parameters show an increase above these temperatures. This increase is much more pronounced in heat resistant steel than in 1Kh18N9T steel. It is pointed out that these temperature effects apply to the relative properties of the metals studied, and that the deformation patterns for absolute stress values may be considerably dependent on temperature levels. "The authors are grateful to O. N. Kalugina for her help in conducting the experiments and analyzing the results." Orig. art. has: 5 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 30Nov64

NO REF SOV: 004

ENCL: 00

SUB CODE: MM, AS

OTHER: 002

L 13063-66 EWT(m)/EWP(w)/T/EWP(t)/EWP(b) JD

ACC NR: AP6000185

SOURCE CODE: UR/0032/65/031/012/1494/1497

AUTHOR: Gusenkov, A. P.; Larionov, V. V.; Shneyderovich, R. M. 21

ORG: State Scientific Research Institute for Machine Design (Gosudarstvennyy nauchno-issledovatel'skiy institut mashinovedeniya) B

TITLE: Comparison of short-time fatigue curves [obtained] in testing under soft and hard loading [conditions] 16

SOURCE: Zavodskaya laboratoriya, v. 31, no. 12, 1965, 1494-1497

TOPIC TAGS: fatigue test, fatigue curve, fatigue curve equation

ABSTRACT: Fatigue testing performed with a small number of cycles is conducted mainly under soft or hard loading conditions (that is, with constant stress or strain amplitudes, respectively) and a fatigue curve for the applied type of loading conditions is obtained. The procedure in constructing a fatigue curve for hard loading from a known fatigue curve for soft loading, and vice versa, is discussed. Equations of the fatigue curves are written for both testing techniques, taking into account the variation in stress-strain relations during the process of cyclic deformation. The conditions and results of testing an aluminum alloy, austenitic steel, and heat-resistant steel (the first two materials are strainhardened, the third is softened by cyclic deformation) are presented and discussed. The fatigue curves for both types of loading conditions obtained by analytical calculations, by the proposed method, and by testing are compared with each other in diagrams and are examined. Orig. art. has: 5 figures and 2 formulas. [VK]

Cord 1/2

UDC: 620.178.3

L 13063-66

ACC NR: AP6000185

SUB CODE: 11,20 / SUBM DATE: none / ORIG REF: 004. OTH REF: 002 / ATD PRESS: 418,

Card

2/2

HW

GUSENKOV, P.V.

Our task in the struggle for a greater technical progress. Med.prom.
no.4:3-7 O-D '55. (MIRA 9:12)

1. Zamestitel' ministra zdravookhraneniya SSSR.
(DRUG INDUSTRY
in Russia, progr.)

4. 1977, T. 7.

Main tasks of the Scientific Research Institute of Experimental Surgical
Equipment and Instruments 3

Novye khirurgicheskie apparaty i instrumenty i opyt ikh primeneniya (New
Surgical Equipment and Instruments and Experience in Their Use) No. 1,
Moscow, 1977. A collection of Papers of the Scientific Research Inst.
for Experimental Surgical Equipment and Instruments.

Min Health, USSR

AID P - 4406

Subject : USSR/Radio

Card 1/1 Pub. 89 - 4/18

Author : Gusakov, P., Dep. **Min.**, USSR Ministry of Health

Title : Using electronics in medicine

Periodical : Radio, 4, 12-13, Ap 1956

Abstract : A report on various instruments equipped with electronic devices and used in the testing and treatment of patients, i.e. measuring instruments, sleep shock, and anesthesia inducing instruments, diathermy, etc. The need for developing a large-scale manufacture of these instruments is emphasized.

Institution : None

Submitted : No date

GUSENKOV, P. V., and NATRADZE, A. G.,

Forty Years of Soviet Public Health Service, 1957, Moscow,

pp. 513-556, Medical Industry.

GUSENKOV, P.V.
GUSENKOV, P.V.

Some problems in the study and production of antibiotics. Med.prom.
11 no.11:3-5 N '57. (MIRA 11:1)

1. Zamestitel' ministra zdravookhraneniya SSSR.
(ANTIBIOTICS)

GUSENKOV, P.V.; NATRADZE, A.G.; KORZHENEVSKIY, E.S.; RUBTSOV, M.V.; PERSHIN,
G.N.; MAGIDSON, O.Yu.; KRAFT, M.Ya.; YAKOVLEVA, Ye.V.; SMIRNINSKIY, S.P.

M.D. Riazantsev; obituary. Med.prom. 14 no.2:64 F '60.

(MIRA 13:5)

(RIAZANTSEV, MIKHAIL DMITRIYEVICH, 1892-1960)

ACCESSION NR: AP4012885

S/0248/64/000/002/0096/0102

AUTHOR: Gusenkov, P. V. (Deputy Minister of Health Protection, SSSR)

TITLE: Outlook for medical equipment development in the USSR

SOURCE: AMN SSSR. Vestnik, no. 2, 1964, 96-102

TOPIC TAGS: medical equipment 7 yr plan, medical equipment production, diagnostic equipment, radio electronic medical equipment, automation, surgical medical equipment, electronic computer, automatic control equipment, public health

ABSTRACT: The Central Committee of the Communist Party and the USSR Council of Ministers (in its resolution No. 58, 1/14/60) outlined the goals for development of medical care and health protection with emphasis on application of new technological advances in other fields. A seven year plan for the development and production of medical equipment provides for: 1) R and D of diagnostic methods and equipment, 2) R and D of equipment for treatment of diseases by physical agents (electromagnetic waves, UHF, etc.), 3) development of measuring means for exact dosimetry of physical agents, 4) mechaniza-

Card 1/3

ACCESSION NR: AP4012885

tion and automation of complex surgical processes, 5) mechanization of heavy and time-consuming hospital work, 6) wide application of new materials, particularly plastics, to the manufacture of medical products. Ten scientific-research and design engineering organizations under the direct supervision of the Ministry of Health are responsible for carrying out the plan. In addition to the 28 specialized plants of the medical instrument industry, 17 plants of other industries are now producing medical equipment. So far the program has been relatively successful except for some difficulties in placing orders for special types of medical equipment because of inadequate production capacity. The author states that "further development of medical technology requires wider use of foreign experience. A bolder approach is needed in applying all modern technological developments which have proved practical in other countries...." Special training courses in the use of new medical equipment are recommended for doctors. The scientific-research institutes of the Academy of Medical Sciences are urged to participate more actively in joint planning with other organizations to develop medical equipment based on the newest technology. Orig. art. has: None.

Card2/3

ACCESSION NR: AP4012885

ASSOCIATION: Ministerstvo zdavookhraneniya SSSR (Ministry of Public Health SSSR)

SUBMITTED: 00

DATE ACQ: 02Mar64

ENCL: 00

SUB CODE: AM

NO REF SOV: 000

OTHER: 000

Card 3/3

GUSENKOV, P.V.

Prospects for the development of the chemical and pharmaceutical industry in the U.S.S.R. Vest. AMN SSSR. no.4:87-95 '64.

(MIRA 18:8)

1. Zamestitel' ministra zdravookhraneniya SSSR.

GUSENKOV, V.; ALIKHASHKIN, A.

Practice of mechanizing the processing of reports on carrying out the state budget. Fin. SSSR. 22 no. 2:83-85 F '61.

(MIRA 14:2)

1. Glavnyy bukhgalter Moskovskoy pechatnoy fabriki Gosznaka (for Gusenkov). 2. Nachal'nik tsekha mekhanizirovannogo ucheta Moskovskoy pechatnoy fabriki Gosznaka (for Alikhashkin).
(Moscow--Printing industry--Accounting)
(Machine accounting)

GUSENKOV, Ye.P.; PANKOVA, Ye.I.

Soils in river valleys of northern Mongolia as exemplified in the Boro-Gol Valley. Pochvovedenie no.8:66-72 Ag '62. (MIRA 16:1)

1. Vsesoyuznyy gosudarstvennyy proyektno-izyskatel'skiy i nauchno-issledovatel'skiy institut Ministerstva sel'skogo khozyaystva.
(Boro-Gol Valley--Soils)

PANKOVA, Ye.I.; GUSENKOV, Ye.P.

Chestnut, loan, sandy-loan, and sandy soils as the object of irrigation farming; using the example of the soils of Mongolia. Vest. Mosk. un. Ser. 5: Geog. 18 no.1:40-42 Ja-F '63.

(MIRA 16:5)

1. Vsesoyuznyy gosudarstvennyy proyektno-izyskatel'skiy i nauchno-issledovatel'skiy institut Ministerstva sel'skogo khozyaystva SSSR.

(Mongolia---Soils---Classification)

(Mongolia---Irrigation farming)

KALACHEV, B.A.; GUSENKOV, Ye.P.

[Method of determining soil salinity with Markovskii's salinometer and suggested simplifications of the standard method] Metod opredeleniia zasolennosti pochvo-gruntov pri pomoshchi solemera Markovskogo i predлагаемые uprosycheniia standartnoi metodiki. Moskva, Giprovodkhoz 1963. 17 p. (MIRA 17:7)

GUSENKOV, Ye.P.; PANKOVA, Ye.I.

Hydrophysical characteristics of Chestnut soils in the Eastern Mongolian Plain. Pochvovedenie no.9:44-51 S '64. (MIRA 17:12)

1. Vsesoyuznyy gosudarstvennyy proyektno-izyskatel'skiy i nauchno-issledovatel'skiy institut vodokhozyaystvennogo stroitel'stva.

GRISHIN, Y. I.; KATANOV, N. A.

Characteristics of soil studies in acid regions. Sovetskoye
no. 8:1-10 Ag '65. (USSR 18:3)

1. Vsesoyuznyy gosudarstvennyy projektirovaniyskiy i
nauchno-issledovatel'skiy institut vostochnykh yevropeyskikh
stran i mest, Moskva.

VEREBOCHENKO, Ye. I.; GUTENKOV, Ye. P.

Soils in the Juba River Valley of equatorial Somalia.
Pochvovedenie no.10:41-42 O '65. (MIRA 18:11)

1. Pochvennyy institut imeni Dokuchayeva i Vsesoyuznyy
gosudarstvennyy proyektno-izyskatel'skiy i nauchno-
issledovatel'skiy institut vodokhozyaystvennogo stroitel'-
stva.

GUSENKOVA, I.

Plasterer-innovator. Stroitel' no.6:17-18 Je '58.
(Plastering)

(MIRA 11:7)

L 44191-66 EWT(m)/SWP(j)/T IJL(c) WJ/AM

ACC NR: AP6013281 (A) SOURCE CODE: UR/0413/66/000/008/0079/0079

57
B

INVENTOR: Kotlyarevskiy, I. L. ; Zanina, A. S. ; Gusenkova, N. M. ; Sokolov, I. Ye. ; Cherepov, Ye. I.

ORG: none

TITLE: Preparation of oligomers. Class 39, No. 180797 [announced by the Institute for Chemical Kinetics and Combustion, Siberian Branch, Academy of Sciences, SSSR (Institut khimicheskoy kinetiki i goreniya Sibirskogo otdeleniya Akademii nauk SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 79

TOPIC TAGS: oligomer, polyarylene, polyacetylene, polycondensation, *heat resistant material, dielectric strength*

ABSTRACT: This Author Certificate introduces a method for preparing an oligomer of the polyarylene polyacetylene series by oxidative polycondensation of diacetylene. To obtain soluble polymer compounds with high heat resistance and dielectric strength, 2, 2-bis-(4' -methoxy-3' -ethynylphenyl)-propane is suggested as the diacetylene. [LD]

SUB CODE: 0711/ SUBM DATE: 29Mar65/

Card 1/1 *amw*

GUSENKOVA, Ye A.

USSR

"Thermic Cracking of N-Heptane Under Pressure."
Thesis for degree of Cand. Chemical Sci. Sub
22 Feb 50, Central Sci. Res Inst of Aviation
Fuels and Oils

Summary 71, 2 Sep 52, Dissertations Presented
for Degrees in Science and Engineering in Moscow
in 1950. From Vedhernyaya Moskva, Jan-Dec 1950.

14
RISAKOV, M.V., GOLDSHTEYN, D.L., GUSENKOVA, YE.A., ALFINOVA, E.A.,
BOROVAYA, M.S., PUCHKOV, N.O., KAZANSKIY, V.L., BADIYSHTOVA, K.M.,
ROGACHEVA, I.M., CHEZNOV, A.A., DENISENKO, K.K., ALTSHULER, A.G.,
GRASIMENKO, M.M., YASTREBOVA, O.I., ZHADANOVSKIY, N.B.

Production of High-grade petroleum oils and waxes by hydrogenation.

Report to be submitted for the Sixth World Petroleum Congress,
Frankfurt, 16-26 June 63

GUSENKOVA, YE.A.

AGAPANOV, A.V., RYSAKOV, M.V., GOLDSHTEYN, D.L., GUSENKOVA, YE.A.,
ALPIMOVA, YE.A., POSHITNOV, V.N.,

Gewinnung von Motorenölen aus schwefelhaltigen Rohölen durch
Hydrierung.

Report to be submitted for the Symposium Lubricants and
Lubrication, Dresden, 27-30 June 1961

ZHUZE, V.P., kandidat fiziko-matematicheskikh nauk, redaktor; VERE -
MEYENKO, G.D., bibliograf; GUSENKOVA, Ye.I., bibliograf;
FILIPPOVICH, V.N., redaktor; ARONS, R.A., tekhnicheskiiy redaktor.

[Scientific literature on semiconductors; bibliography for 1920-
1952] Nauchnaya literatura po poluprovodnikam; bibliografiya 1920-
1952. Moskva, 1955. 631 p. (MLRA 8:12)

1. Akademiya nauk SSSR. Institut poluprovodnikov, Leningrad.
(Bibliography--Semiconductors)

ZHUZE, V.P., kand.fiziko-matemat.nauk; GUSENKOVA, Ye.I., bibliograf;
BUBNOVA, M.L., bibliograf; ARON, G.M., red.izd-va; BOCHEVSK, V.T., tekhn.red.

[Scientific works on semiconductor electronic instruments (detectors and transistors); bibliography 1945-1955] Nauchnaia literatura po poluprovodnikovym elektronnym priboram (detektory i tranzistory); bibliografiia 1945-1955. Moskva, Izd-vo Akad. nauk SSSR, 1959. 326 p. (MIRA 12:8)

1. Akademiya nauk SSSR. Institut poluprovodnikov.
(Bibliography--Transistors) (Bibliography--Electronic instruments)
(Bibliography--Semiconductors)

ZHUZE, Vladimir Panteleymonovich; GUSENKOVA, Yelena Ivanovna; ARON,
G.M., red.izd-va; ZENDEL', M.Ye., tekhn. red.

[Bibliography on thermoelectricity; thermoelectric generators
and coolers] Bibliografiia po termoelektrichestvu; termoelektro-
generatory i okhlazhdaushchie ustroistva. Moskva, Izd-vo
Akad. nauk SSSR, 1963. 249 p. (MIRA 16:2)
(Bibliography--Thermoelectricity)

VREDEN-KOBETSKAYA, T.O.; GUSENKOVA, Ye.I.; NESMEYANOV, A.N., akademik,
glavnyy red.; TOPCHIEV, A.V., akademik, zam.glavnogo red.;
ISAKOVA, O.V., otv.red.; LIKHTENSHTAYN, Ye.S., otv.red.;
SHUNKOV, V.I., otv.red.; GUROV, K.P., red.izd-va

Abram Fedorovich Ioffe. Vstup. stat'ia A.I.Ansel'ma i V.P. Zhuze.
Bibliografiia sost. T.O.Vreden-Kobetskoi i E.I.Gusenkovoi.
Moskva, 1960. 134 p. (Materialy k biobibliografii uchenykh SSSR.
Ser.fiziki, no.12). (MIRA 14:4)

1. Akademiya nauk SSSR.
(Ioffe, Abram Fedorovich, 1880-1960)

107-57-6-22/57

AUTHOR: Gusev, A., Minister of Communications of Turkmen SSR

TITLE: A Multichannel Wire Broadcasting (Mnogoprogrammnoye veshchaniye po radiotranslyatsionnym setyam)

PERIODICAL: Radio, 1957, Nr 6, pp 20-21 (USSR)

ABSTRACT: A few years ago, the Directorate of the Wire Broadcasting Network of the Turkmen SSR jointly with the Leningrad Branch of the Central Research Institute of Communications developed a system of multichannel wire broadcasting. The band 80 to 150 KC is adopted for multiplexing. Four carrier frequencies are considered possible within this band. The system is being tried in Ashkhabad. As wire broadcast networks exist practically in every city of the Soviet Union, it was felt expedient to superimpose additional high-frequency channels on such networks. The AF broadcast program carried by a network remains intact. Two additional programs are superimposed with 80 KC and 130 KC carrier frequencies. Two carrier transmitters are installed at a wire broadcast station (radiouzel). Their output is about 200 watts each. Tube types used: 6Zh4, 6P3S, G-417. For a satisfactory signal-to-noise ratio, the remotest subscriber's point should have an input voltage of between 50 and 100 MV. Each apartment house has one carrier receiver and each subscriber in

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107-57-6-22/57

A Multichannel Wire Broadcasting

the house has a loudspeaker and a simple switch for selecting between two or three programs. There are several alternatives discussed in the article which have not yet been tested in practice.

There is one circuit diagram.

AVAILABLE: Library of Congress

Card 2/2

GUSEV, A.

"Advanced Agronomy - Guarantee of High Yields on Virgin Land," published in -
An Aid to Agricultural Specialists in the Reclamation of Virgin and Fallow Lands,
Sbornik Materialov i Statey, Vol.1, pp 25-144, 1954

Manager of the Kellerov Supporting Point of the Kazakh Sci. Res. Inst. of Agric.,
Kellerovskiy Rayon, Kokchetav Oblast'.

Translation No. 431, 30 Jun 55

GUSEV, A.

Technologist work norm specialists are necessary. Sots.trud. no.5:
90 My '56. (MLRA 9:8)

1. Nachal'nik otdela truda i zarabotnoy platy Klimovskogo mashino-
stroitel'nogo zavoda.
(Production standards)

GUSEV, A.

Improving visibility of moving automobiles in fog. Avt.transp. 34
no.4:32 Ap '56. (MLBA 9:8)

1. Nachal'nik Orlovskogo oblastnogo upravleniya avtotransporta i
shosseynykh dorog.

(Automobile--Lighting)

GUSEV, H.

GUSEV, A.

Stationary mechanical grease pump. Avt.transp. 32 no.11:35
N '54. (MLRA 8:3)
(Lubrication and lubricants)

GUSEV, A.

Engineers - innovators of the seven-year plan. Mashinostroitel'
no.3:34-35 Mr '60. (MIRA 13:6)
(Kolomna--Diesel locomotives--Technological innovations)

GUSEV, A.

Innovation of mechanic Terent'ev. Mashinostroitel' no.11:40 N '60.

(MIRA 13:10)

(Kolonna--Diesel locomotives--Technological innovations)

L 65294-65

ACCESSION NR: AF5021512

UR/0018/65/000/008/0115/0115

AUTHOR: Gusev, A. (Lieutenant Colonel)

TITLE: An operating model of the ARS-12D

SOURCE: Voyennyy vestnik, no. 8, 1965, 115

TOPIC TAGS: training equipment, military training/ ARS 12D operating model

ABSTRACT: A one-quarter scale operating model of the automatic washing unit ARS-12D was developed for classroom training of special treatment platoons. It is made principally from 1.0 mm metal sheets and is mounted on wooden wheels. The training is facilitated by such means as a viewing window in the side of the cistern and illumination inside the cistern. Some parts are simulated in various ways, e.g., an oil pump from a GAZ-51 truck takes the place of the mechanical pump. The unit is powered by an electric motor from a 24-v battery or a 220-v circuit via a transformer. Several parts are removable, and the unit is provided with 14 additional 280-kg tanks for the DTS-CK solution. The model operates satisfactorily, is simple to make, and provides economy of time and equipment. Orig. art. has: 1 figure.

ASSOCIATION: none

Card 1/2

L 65294-65

ACCESSION NR: AP5021512

SUBMITTED: 00

ENCL: 00

SUB CODE: MS

NO REF SOV: 000

OTHER: 000

Card

2/2

21(3), 11(7), 21(3)

SOV/89-7-4-25/28

AUTHORS: Siritsyn, V., Leshchinskiy, N., Gusev, A.

TITLE: A New Container for Radiation Sources of High Activity

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 4, pp 399 - 400 (USSR)

ABSTRACT: The necessity arose of transporting high-activity radiation sources and also of filling them immediately from the transport containers. The containers hitherto used were destined for the transport radiation sources having an activity of 400 gram equivalents of radium. From these containers the sources could be taken only in certain water-vessels, and therefore it was not possible to use them for immediately filling devices provided with a dry protective system. Therefore, a new type of containers was now developed, which is destined especially for the transport of high-activity radiation sources and for the direct filling of apparatus with radiation sources. In such a container it is possible simultaneously to transport up to 4 standard cobalt radiation sources having an activity of up to 700 gram equivalents of radium. These containers consists of cast iron cases containing the principal lead shield and the mechanism for conveying the sources into the container, for keeping these

Card 1/2

A New Container for Radiation Sources of High Activity SOV/89-7-4-25/28

sources in the container, and for discharging them. This mechanism may be controlled from the upper part of the container. The sources are filled into the container under a protective shield of water in a basin. In order to avoid the accumulation of random impurities, the surface of the container has as few protruding parts as possible. The sources can be discharged under a protective shield of water or also immediately into the discharge channels of the apparatus by means of a dry shielding system. The container may be transported by means of ordinary conveyances. For this purpose, the case and the lead shield are constructed in such a manner that the dose rate of the radiation at a distance of 0.5 m from the container surface does not exceed 2.5 millicurie/sec. The container weighs about 1 ton. There are 2 figures.

Card 2/2

GUSEV, A.

Books on physics to be issued by the "Mir" Publishing House
in 1966. Usp. fiz. nauk 87 no. 4: 740-742 P 165.

(NIRA 19:1)

GUSEV, A. A.

GUSEV, A. A. and V. Z. Chernyak are Co-authors of the article "Mycosis of Air Bags (gutturomycosis, acrocystomycosis) in Horses". (Veterinariya, No. 3, 1948, p. 20-21) [Item No. 16145] This article also appears in the collection 'Nauch-Prakt. raboty voyen-vet. Sluzhby'. Moscow, 1948, p. 100-102. [Item No. 3509] They also wrote the article "Equine Necrotic Rhinitis" which appears in the collection 'Nauch-Prakt. raboty voyen-vet. Sluzhby', Moscow, 1948, p. 99-100. [Item No. 3510] SO: Letopis' Zhurnal'nykh Statey, 1948, Unclassified

EFB

GUSEV, A.A., veterinarnyy vrach.

Colic statistics. Veterinariia 30 no.7:42-43 Jy '53. (MLRA 6:7)

24402

ТУСЭВ, А. А. Lechaniye necroshikhguya otn strallinykh porazheniy. Trudy Slav. voyen. Gospitalya Vooruzh. Sil SSSR im. akad. Borkhova. VII. 6. 1946, S. 131-36.

80: Letopis, No. 32, 1949.

GUSEV, Aleksandr Alekseyevich; TYURIN, Vasilii Alekseyevich; MISHKEVICH, G.I.,
redaktor; FRUMKIN, P.S., tekhnicheskiy redaktor.

[Reversible blueprinting with SADP-1 and SADP-2 equipment] Dvustoron-
nee svetokopirovanie na apparatakh SADP-1 i SADP-2. Leningrad, Gos.
soiuznoe izd-vo sudostroitel'noi promyshl., 1955. 31 p. (MLRA 9:5)
(Blueprinting)

GUSEV, A.A., aspirant; KOLYAKOV, Ya.Ye., prof., nauchnyy rukovoditel'
raboty

Lactic acid urease-active micrococci of the rumen in cattle.
Veterinariia 41 no.9:24-26 S '64. (MIRA 18:4)

1. Moskovskaya veterinarnaya akademiya.

BELOV, Konstantin Petrovich; BELYANCHEIKOVA, Marianna Aleksandrovna;
LEVITIN, Rudol'f Zinov'yevich; NIKITIN, Sergey Aleksandrovich;
GUSEV, A.A., red.

[Rare-earth ferromagnetics and antiferromagnetics] Redko
zemel'nye ferromagnetiki i antiferromagnetiki. Moskva, Nauka,
1965. 319 p. (MIRA 19:1)

VONSOVSKIY, S.V.; GUSEV, A.A., redaktor; TUMARKINA, N.A., tekhnicheskiy redaktor.

[Modern theories on magnetism] Sovremennoe uchenie o magnetizme.
Moskva, Gos. izd-vo tekhn.-teoret. lit-ry, 1953. 440 p. (MLRA 7:8)
(Magnetism)

SHVET, A. I.
Vagrovskan

Dissertation: "Quantum Theory of Magnetostriction." Card Phys-Math Sci,
Moscow Order of Lenin State U imeni M. V. Lomonosov, 21 Mar 54. (Vechernnyaya
Moskva Moscow, 15 Mar 54)

SO: SUM 213, 20 Ser 1954

GUSEV, H. H.

538.245 : 538.652 62
7194. Quantum theory of the magnetostriction of
ferromagnetic monocrystals. A. A. Gusev. Dokl.
Akad. Nauk SSSR, 98, No. 5, 749-52 (1954) In
Russian.

A systematic quantum-mechanical consideration of
the electron system in a spontaneously deformed ferro-
magnetic monocrystal furnishes an explanation of the
phenomenon of magnetostriction and shows its
relationship with the magnetic interaction of the
electrons. The theory yields the temperature relation
of the magnetostriction constants at low temperatures
for hexagonal and cubic crystals which must show
analogies with the anisotropy constants, as suggested
by the character of the low-temperature energy
spectrum.

ELECTRICAL RESEARCH ASSOCIATION

TERLETSKIY, Ya.P., redaktor; GUSEV, A.A., redaktor; PRONCHENKOV, I.V.,
redaktor; VILLENIEVA, A.V., tekhnicheskii redaktor

[Problems of causality in quantum mechanics; collection of translations] Voprosy prichinnosti v kvantovoi mekhanike; sbornik perevodov. Moskva, Izd-vo innostrannoi lit-ry, 1955. 333 p. (MLRA 8:7)
(Quantum theory)

GUSEY, A. A.

538.2 : 538.652
1956. QUANTUM THEORY OF MAGNETOSTRICTION
A. A. Gusev.
Zh. teoret. i eksper. fiz., Vol. 29, No. 2 (8), 161-62 (1955). In Russian.

A consistent quantum-mechanical theory of the magnetostriction of hexagonal mesocrystals, based on Bogolyubov and Tyablikov's theory of the polar model of a metal, considering magnetic and magneto-elastic interaction of the electrons in the lattice, is presented. This shows that magnetostriction is due to the magnetic interaction of the electrons and yields the temperature relation of the magnetostriction constants, the energy spectrum at low temperatures and the free energy of the crystal.

Electrical Research Association

Moscow State Univ. im M. V. Lomonosov

USSR/Physics - Magnetostriction

FD-3278

Card 1/1 Pub. 146 - 37/44

Author : Gusev, A. A.

Title : Quantum theory of magnetostriction of cubic single-crystals of ferromagnetics at low temperatures

Periodical : Zhur. eksp. i teor. fiz., 29, No 6(12), Dec 1955, 895-897

Abstract : The general method of quantum consideration of the magnetostriction of ferromagnetic single-crystals was expounded earlier by the writer (ibid., 29, 181, 1955) in application to crystals with hexagonal symmetry. In the present communication he expounds the theory for crystals of cubic symmetry. He notes that all the principal physical assumptions of the theory which were described in his earlier work hold true also for the cubic lattice and down to temperatures of liquid hydrogen. He concludes that the development of a systematic quantum-mechanical theory of magnetostriction phenomena for medium temperatures and the Curie point is an important still unsolved task of the quantum theory of magnetism. He refers to his dissertation, Moscow State University, 1954. Four references: e.g. S. V. Tyablikov, ZhETF, 20, 661, 1950 and S. V. Vonsovskiy, ZhETF, 10, 761, 1940.

Institution: Moscow State University

Submitted : November 10, 1954

GUSEV, A. A. and TYABLIKOV, S. V. (Moscow)

"On the Temperature and Field dependence of Magnetic Anisotropy Constants,"
paper presented at the International Conference on Physics of Magnetic Phenomena,
Sverdlovsk, USSR, 23-31 May 1956.

GUSEV, A.A.

USSR / Magnetism. Ferromagnetism

F-4

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9504

Author : Tyablikov, S.V., ~~Gusev, A.A.~~
Inst : *Mathematics Institute imeni V.A. Steklov, Academy of Sciences USSR; **Foreign Literature Press.
Title : Dependence of the Constants of Magnetic Anisotropy of Cubic Crystals on the Temperature and on the Field.

Orig Pub : Fiz. metallov i metallovedeniye, 1956, 2, No 3, 385-390

Abstract : Using the method of approximate second quantization, the authors calculate the dependence of the magnetic-anisotropy constants of crystals of the cubic system on the temperature and on the external magnetic field under the assumption that the terms of the Hamiltonian of the system, responsible for the anisotropy, can be represented in the form of the fourth form relative to the spin operators.

Card : 1/1

PA - 2230

AUTHOR: GUSEV, A.

TITLE: "NUCLEAR REACTORS" (Material of the Atomic Energy Commission of the U.S.A.). (Russian).

PERIODICAL: Atomnaia Energiia, Vol 2, Nr 1, pp 96 - 98, 1957 (U.S.S.R.)
Received: 3 / 1957

ABSTRACT: In the spring of 1955 the AEC of the U.S.A. on the occasion of the Geneva Conference, prepared the publication of a work in eight volumes dealing with the problems of atomic energy and its application. For this purpose the data of work carried out in the United States were used. These eight volumes, among others, deal with the following subjects:

1. Volume: Reactors for purposes of research: Here the American reactors which are being used for various nuclear-physical and technical purposes are described. All these reactors work with thermal neutrons. The theoretical and numerical data used for projecting these reactors are not available.

2. Volume: Nuclear Reactors Part I. The Physics of Nuclear Reactors: The first and more voluminous part of this volume deals with physical processes in nuclear reactors, and furnishes the most important data on nuclear physics, reactor theory, etc. The second part deals with protection against radioactive radiation.

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PA - 2230

"Nuclear Reactors"

3. Volume; Part II. The Technology of Nuclear Reactors: This volume deals with the problems of reactor cooling and with the methods of treating reactor fuel.

4. Volume; Part III. Materials for Nuclear Reactors: This volume contains an accurate description, given from various points of view, of the properties of elements, alloys, compounds, and technical material, which are used as constructional elements for the equipment of the reactor, or for the operation of the reactor as fuel, moderators, reflectors, etc. The Russian translation contains several corrections carried out on the basis of new data.

5. Volume: Atlas of the Curves of the Neutron Cross Sections of Elements: This volume is not further discussed.

6. Volume: Chemical Processes and Equipment: This volume consists of two parts. The first deals with the technological process of the industrial processing of nuclear fuel, equipment, methods of de-activation, problems of protection against radiation, and rational production, as well as with the analytical department of the nuclear factory. The second part of this volume deals with the "hot" laboratory.

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PA - 2230

"Nuclear Reactors"

7. Volume: A Collection of Data on Isotopes Found in the Course of eight Years: The volume begins with a very popular description of the properties of isotopes. The main part of the volume contains a detailed survey of publications on isotopes.

8. Volume: Works on Atomic Energy: (Reference- and bibliographical data). This volume contains, among other items, an index of reports published by the AEC of the U.S.A. All these volumes will, apart from some unimportant additions and corrections, be published in the Russian Language.

ASSOCIATION: Not given.

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress.

Card 3/3

GUSEV, A. A.

SUBJECT: USSR/Physics of Magnetic Phenomena

AUTHORS: Gusev, A.A. and Tyablikov, S.V.

TITLE: On Dependence of Magnetic Anisotropy Constants on Temperature and Field Intensity in Cubic Crystals (O zavisimosti konstant magnitnoy anizotropii kubicheskikh kristallov ot temperatury i polya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #6, p 887 (USSR)

ABSTRACT: The Hamiltonian of a system of electrons causing ferromagnetism in the Heitler-London model can be presented as a series expanded by even powers of spin operators.

When the cubic symmetry of the lattice is taken into account up to the terms of the fourth power, it is possible, by means of an approximate second quantization method, to determine the energetic spectrums of the system, to calculate the free energy and to find formulae for the constants of magnetic anisotropy as functions of temperature and magnetic field intensity.

An approximate expression is given for the first constant of magnetic anisotropy in a cubic ferromagnetic monocrystal.

Card 1/2

TITLE:

On dependence of Magnetic Anisotropy Constants on Temperature and Field Intensity in Cubic Crystals (O zavisimosti konstant magnitnoy anizotropii kubicheskikh kristallov ot temperatury i polya)

This report in details was published in "Zhurnal", 1976, Vol. 2, p. 385. No references are cited.

ASSOCIATION: Moskva State University imeni Lomonosova.

PRESENTED BY:

SUBMITTED: No date indicated.

AVAILABLE: At the Library of Congress.

Card 2/2

GUSEV, A.A.
FRENKEL', Yakov Il'ich; VONSOVSKIY, S.V., red.; GUSEV, ~~A.A.~~ red.;
MURASHOVA, N.Ya., tekhn.red.

[Introduction to theory of metals] Vvedenie v teoriyu metallov.
Izd. 3. Pod red. S.V.Vonsovskogo. Moskva, Gos.izd-vo fiziko-
matematicheskoi lit-ry, 1958. 368 p. (MIRA 11:6)
(Physical metallurgy) (Solids)

24.2200

TS/RS
SOV/70-4-11/36

AUTHOR: Gusev, A. A.

TITLE: Concerning the Theory on the Magnetic Properties of Ferrite Crystals

PERIODICAL: Kristallografiya, 1959, Vol 4, No 5, pp 695-701 (USSR)

ABSTRACT: The model, upon which the considerations of the author are based, rests on the concept that ferrites, and like substances, have structures formed of interpenetrating sublattices whose nodes are occupied by unlike magnetic ions, the spin values and the magnetic moments of which differ; consequently the anti-ferromagnetism of one sublattice remains uncompensated by those of the other sublattices. Considering structures formed, for the sake of simplicity, of only two sublattices, he derives 42 equations that, in terms of atomic constants, define the possible equilibrium distribution of the magnetic moments, magnetization as a function of the field and temperature, the critical magnetic fields of transition from one to the second or third magnetic

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Concerning the Theory on the Magnetic Properties
of Ferrite Crystals

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SOV/70-4-5-12/36

states, magnetic susceptibility of crystals, etc.
The equations are valid for the solids of similar
structures regardless of the magnitude of the spin
and magnetic moments of the constituent unlike ions
and of the ratio in which they may occur in the
structure. Advice from Tyablikov, S. V., is ack-
nowledged. There is 1 figure; and 3 references, 6
Soviet, 1 U.S., 1 Dutch. The U.S. reference is:
Y. Yafet, Ch. Kittel, Phys. Rev., 87, 890-894 (1952)

ASSOCIATION: Crystallographical Institute of the Academy of Sciences
of the USSR (Institut kristallografi AN SSSR)

SUBMITTED: July, 6, 1959

Card 2/2

85095

S/070/60/005/003/018/02/1/1/1
E132/E460

24,9900 (1055,1144,1160)

AUTHOR: Gusev, A.A.

TITLE: The Theory of the Temperature Dependence of
Magnetization and of the Paramagnetic Susceptibility of
Ferromagnetics

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 3, pp. 420-425

TEXT: Application of the theory proposed earlier (Krist. 4, 693, 1959) of two sublattice ferromagnetics to certain questions of the temperature dependence of the magnetic properties of ferrites and such substances has given the following results. Equations are introduced which describe the dependence of the magnetization on temperature; their analogy to the equations for the molecular field reveals the meaning of the phenomenological constant of the molecular field both for a system of the type examined and for simpler systems. The correctness of the application of the molecular field method to ferromagnetic substances thus has a subsequent quantum mechanical basis. A formula is obtained for the temperature dependence of the magnetic susceptibility of ferromagnetics in the paramagnetic region (Néel's law). An expression is also obtained for the so-called paramagnetic Curie Card 1/2

8:070

S/070/60/005/003/018/024/XX
E132/E460

The Theory of the Temperature Dependence of Magnetization and of the Paramagnetic Susceptibility of Ferromagnetics

current. The temperature dependence of the spontaneous magnetization of ferromagnetics in the region of the Curie point is determined. The character of this dependence which is found is the same as in normal ferromagnetics. All these dependences have been obtained in analytical form but the constants entering the formulae are expressed in terms of the atomic constants of the material. It should be pointed out that if the equality of the spin and magnetic moments of the magnetic ions in the sublattices is assumed, then from the formulae of the present work all the results of Néel's theory can be obtained as special cases and at the same time the meaning of the phenomenological constants in Néel's theory is disclosed. There are 6 Soviet references.

ASSOCIATION: Institut kristallografi AN SSSR
(Institute of Crystallography AS USSR)

SUBMITTED. January 20, 1960

Card 2/2

VONSOVSKIY, S.V., red.; GUSEV, A.A., red.; AKHLAMOV, S.N., tekhn.
red.

[Ferromagnetic resonance; the phenomenon of resonance absorption of a high-frequency electromagnetic field in ferromagnetic substances] Ferromagnitnyi rezonans; iavlenie rezonansnogo pogloshcheniia vysokochastotnogo elektromagnitnogo polia v ferromagnitnykh veshchestvakh. Moskva, Gos. izd-vo fiziko-matem.lit-ry, 1961. 343 p. (MIRA 15:2)

1. Chlen-korrespondent Akademii nauk SSSR (for Vonsovskiy).
(Ferromagnetic resonance)

24,2280 (1144,1147,1164)
15 2660 1158

30059

S/048/61/025/011/003/031
B108/B138

AUTHORS: Gusev, A. A., and Pakhomov, A. S.

TITLE: Ground state of ferrites with three magnetic sublattices

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 25, no. 11, 1961, 1327-1333

TEXT: The authors studied the ground states of garnet-type rare-earth ferrites with three magnetic sublattices. It is assumed that the exchange interaction of the rare-earth sublattice is the same with both iron sublattices, and weaker than that between the iron sublattices. The magnetic ions of the system, a magnetic single crystal, have spin moments s_1, s_2, s_3 and magnetic moments μ_1, μ_2, μ_3 , respectively. The numbers of magnetic ions in the sublattices are N_1, N_2, N_3 , respectively. The exchange interaction may be either ferromagnetic (positive) or antiferromagnetic (negative). The Hamiltonian of the system considered has the form

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Ground state of ferrites with three...

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B108/B138

$$\hat{H} = -\frac{1}{2} \sum_{\substack{i=1 \\ h, h}}^3 I(f_i^{(0)}, f_2^{(0)}) (\hat{S}_1^{(0)} \hat{S}_2^{(0)}) - \\ - \sum_{\substack{i+j: i, j=1 \\ i, j}}^3 I(f_i^{(0)}, g_j^{(0)}) (\hat{S}_1^{(0)} \hat{S}_2^{(0)}) - \sum_{\substack{k=1 \\ j(k)}}^3 \mu_k (H \hat{S}_j(k)). \quad (1)$$

From this and with partial magnetization $\vec{M}_i = \mu_i N_i \vec{\sigma}_i$ ($i = 1, 2, 3$), the ground state energy of the system is obtained as

$$E = -E_0 - \sum_{\substack{i>j \\ i, j=1}}^3 k_{ij} (M_i M_j) - \sum_{i=1}^3 (H M_i), \quad (6)$$

with $E_0 = \frac{1}{2} \sum_{i=1}^3 N_i J_{ii} \sigma_i^2$ and $k_{ij} = K_{ij} / \mu_i \mu_j N_i N_j$. The K 's and,

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G/048/61/025/011/003/031
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Ground state of ferrites with three...

consequently, the k 's are symmetrical (exchange interaction constants). With the Hamiltonian (1) and using N. N. Bogolyubov's variation theorem, equations can be derived for the temperature dependence of magnetization.

The magnitude of the spin vectors is given by $\sum_{\alpha=1}^3 (M_i^{\alpha})^2 = M_{i0}^2 = \text{const}_i(6)$,

where $(i = 1, 2, 3)$. Extremum conditions for energy (6) in the form of

$F = E - \frac{1}{2} \sum_{i=1}^3 \lambda_i M_i^2$ (c) are sought. The system of equations

$$\begin{aligned} \lambda_1 M_1 + k_{12} M_2 + k_{13} M_3 &= -H, \\ k_{21} M_1 + \lambda_2 M_2 + k_{23} M_3 &= -H, \\ k_{31} M_1 + k_{32} M_2 + \lambda_3 M_3 &= -H. \end{aligned} \quad (10)$$

is obtained. With these equations the M_i^{α} and λ_i values corresponding to the above extremum can be found (a). The Lagrange factors λ_i depend on

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k_{ij} , M_{10} , and H . The minimum energies and the corresponding configurations of \vec{M}_i are considered for three cases: (a) $J_{12}, J_{13} < 0, J_{23} > 0$, (b) $J_{12}, J_{23} < 0, J_{31} > 0$, (c) $J_{12}, J_{23}, J_{31} < 0$. The resultant magnetizations of the first two cases are equal, namely $M_{res} = -M_{10} + M_{20} + M_{30}$. The resultant magnetization in case (c) is $M_{res} = M_{10} - M_{20} + M_{30}$. These results are valid where the magnetic field \vec{H} in the Oz direction is not too strong. In the case of a strong magnetic field, the resultant magnetization will be equal for all three cases since then the partial magnetizations will all point in the direction of \vec{H} . This paper was read at the Conference on ferromagnetism and antiferromagnetism in Leningrad, May 5-11, 1961. Mention is made of S. V. Tyablikov (Fizika metallov i metallovedeniye, 3, 3 (1956); 8, 152 (1959)). There are 1 figure and 7 Soviet references.

ASSOCIATION: Institut kristallografii Akademii nauk SSSR (Institute of Crystallography of the Academy of Sciences USSR). Fizicheskiy fakul'tet Moskovskogo gos. universiteta im. M.V. Lomonosova (Department of Physics of Moscow State University imeni M. V. Lomonosov)

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